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X.—*Contributions to British Actinology.* By EDWARD FORBES, M.W.S., For. Sec. B.S., &c.

I. *On Kapnea, a new Helianthoid Polype*.*

IN August 1840, I dredged on the east coast of the Isle of Man, about a mile from Douglas Head, a very remarkable and beautiful Zoophyte, of the family *Actiniadae*. It came from a depth of 18 fathoms, and the sea-bottom at the place where it was taken is chiefly *Millepora*. To a fragment of that coral it was adhering by its expanded base, and when taken its tentacula were retracted. The body presented the appearance of a lengthened cylinder arising from a broad-spreading inflated base, and terminating in a round tentaculiferous disc, in the centre of which is a circular mouth. The tentacula are very short, and have the aspect of squared tubercles. They are arranged in three circles, sixteen in each circle, those of the outermost or marginal row largest. Below the tentacula and surrounding the disc is a granulated calycine circle or belt; and a little below it, extending downwards over a portion of the base, the body is invested by a woolly, brown epidermis, which is eight-cleft or lobed at its upper part. The base is somewhat lobed, and usually swelled out with sea-water. The body and base are of a vivid vermilion colour, the latter with darker longitudinal stripes. The tentacula are somewhat paler and inclined to orange. They can be drawn within the body, the upper part of which can be retracted as low as the commencement of the epidermis. When fully expanded, this animal was an inch in height by one-fourth of an inch broad at the disc. It is rather an active creature, changing its form often, but always presenting more or less of a tubular shape, like a chimney-crock or steam-boat funnel.

The shape of the tentacula and the presence of a regular epidermis are the most remarkable features of this *Actinea*,

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and distinguish it at once from all its tribe. Its general form and calycine rim approach to the *Actinea bellis* and some other species appertaining to the genus *Actinocereus* of Blainville. The epidermis and the imperforate tentacula separate it from Ehrenberg's restricted genus *Actinea*, and the absence of dermal pores from his *Cribrina*; neither of which divisions, as defined by that naturalist, I am inclined to admit, and therein agree with my friend Dr. Johnston. It is more nearly related to the *Zoanthidæ* than any known species of its family, and presents a most interesting transition from the typical *Actiniadæ* to that tribe. The regular form of the singular epidermis would lead us to consider that appendage as an imperfect tube, and some curious analogies might result from such a view. Both the number of the tentacula and of the clefts or lobes of the epidermis being multiples of four, is important, as supporting the notion that four is the typical or dominant number of the *Actiniadæ*, perhaps of all Zoophytes.

On account of the above characters, I have thought it right to constitute a separate genus for its reception under the name of *Capnea* (from *καπνη*, a chimney), and define it thus:

Body cylindric, invested in part by a lobed epidermis, and adhering by a broad base. *Tentacula* simple, very short, retractile, surrounding the mouth in concentric series.

Sp. *Capnea sanguinea*, Forbes.

Tentacula arranged in three series, sixteen in each. Body and disc scarlet. Epidermis brown.

Hab. Deep water, Irish Sea; among *Millepora*. Pl. I. fig. 1, *a, b, c, d.*

II. *A British Hippocrene.*

The genus *Hippocrene* was constituted by Brandt for a very curious and beautiful little Medusa observed by Martens in Behring's Straits, and which had been previously described by Lesson, who had it from the Malanine Isles, under the name of *Cyanæa Bugainvillii*. Lesson afterwards re-named it *Bugainvillia macloviana*, but Brandt's generic name takes precedence by right of priority. The generic character depends on the production of the mouth into a sort of trunk, which has wing-like appendages at its sides, and terminates in four branching tentacular arms. From each of the appendages runs a canal to the margin, where we find the tentacula collected in fasciculi, and not surrounding the edge, or separate, as in most allied Medusæ.

When naturalizing on the north coast of Ireland with Mr. Smith, of Jordan Hill, in 1839, I took a number of Medusæ

of this genus by the towing-net, in Ballycastle Bay and at Port Rush, and afterwards, during the same summer, found it on the other side of Britain, at the mouth of the Frith of Forth. My animal is larger, and differs in several particulars from that described by Brandt and by Lesson, and I regard it as a new species. In form it is almost globular, and it measures an inch in length. The central cavity is oblongo-quadrate, and occupies about one-half of the globular umbrella. At its summit interiorly are seen four stomachal appendages, placed at right angles to each other so as to form a cross. They are equal in size, of a yellow colour, squared above, rounded below, and oblong. At their lower or oral extremity are seen four slender white arms, which dichotomously divide into numerous tentacula with globular tips. These arms are very extensile, but are never sent from out the cavity. From each of the four oral appendages or *alæ* runs a translucent canal to one of the four fascicles of the tentacula, one of which is seen at each angle of the quadrate cavity opening. These tentacula are very curious. They are highly contractile, and spring from little arches of a glandular appearance and a red colour, which form the bases of the fascicles, and into which the four canals run. On magnifying one of these arches, we find it to consist of two parts, one (the upper) red, the lower white, and each of these to consist of a great number of tubercles, which form the roots of the tentacula. On each tubercle is a minute black ocular dot. The tentacula are not all extended at the same time; very often one, two or three only are sent out, but there appear to be more than a dozen pairs of tubercles in each arch. Between the arches the margins of the cavity are straight, and furnished with a semicircular lip or valve. The outer surface of the body is smooth, and the appearance of the creature is that of a crystal bubble, with four red dots round a square opening, and a central yellow nucleus, having branched threads suspended from it.

Sars, in his 'Beskrivelser,' &c. has figured and described a minute Medusa under the name of "*Cytais? octopunctata*," which evidently belongs to the same group with the above. The known species of *Hippocrene* may be summed up as follows:—

H. Bugainvillii, Brandt. (See figure in Petersburg Transactions for 1838.) Stomachal appendages as long as the proboscis, eight, the four larger ones oblong, yellow, with red centres. Tentaculiferous glands four, red and yellow, with pink tentacula. Umbrella in part pilose. North Pacific.

H. britannica, Forbes. Stomachal appendages as long as the proboscis, four, equal, yellow. Tentaculiferous glands four, red and white, with white tentacula. Umbrella smooth. North of Ireland and East of Scotland.

H. octopunctata, Sars. (Beskr. og Jagt. p. 28. t. 6. f. 14.) Stomachal appendages shorter than proboscis, four, unequal. Tentaculiferous glands eight, black. Umbrella smooth. Coast of Norway.

Plate I. fig. 2 *a*, *Hippocrene britannica*, of the natural size; 2 *b*, its stomachal appendages and oral arms; 2 *c*, a tentaculiferous gland and tentacula.

III. *New Species of Thaumantias.*

The Medusæ of this very natural genus, established by Eschscholtz, have a simple stomachal cavity, from which proceed four simple canals; no arms, but a probosciform mouth, which cannot be prolonged beyond the general cavity, and a margin surrounded by tentacula, which are usually bulbous at their bases, and are highly extensile. The species of *Thaumantias* are small animals, and probably numerous in the northern seas. Hitherto they appear to have been mostly confounded under the *Medusa hæmisphærica* of Muller, which is a prettily coloured species, already recorded as a native of the British seas. I have never met with an example which I could refer to Muller's animal, but have found four very well marked species which have hitherto been unrecorded.

1. *Thaumantias pileata*, nov. sp. Umbrella cap-shaped. Oral peduncle and clubs of the vessels pink. Proboscis four-cleft at the mouth, lobes acute. Eyes large, black and yellow, on the bulbous origins of the twenty tentacula.

This pretty species, the shape of which resembles that of a Chinese hat, measured about an inch across. The clubs of its vessels are small and narrow. It was taken at Port Rush, on the north coast of Ireland, in June 1839.

Pl. I. fig. 3 *a* & *b*, *Thaumantias pileata*; 3 *c*, its oral peduncle.

2. *Thaumantias Thompsoni*, nov. sp. Umbrella hemispherical, very convex. Proboscis four-cleft, lobes triangular. Clubs of the vessels, proboscis and bases of tentacula yellow. Eyes minute, black, on the triangular bases of the sixteen tentacula.

Pl. I. fig. 4 *a* & *b*, *Thaumantias Thompsoni*; 4 *c*, one of the tentacula.

Taken abundantly in Clifden Bay, Cunnemara, by Mr. Thompson, Mr. Ball, and myself, in July 1840. A small species, one-fourth of an inch across; clubs of the vessels short and broad.

3. *Thaumantias punctata*, nov. sp. Umbrella hemispherical. Clubs and proboscis pink. Proboscis four-cleft, lobes sub-acute. Eyes large, black, on the bulbous bases of the thirty-two tentacula.

Pl. I. fig. 5 *a b*, *Thaumantias punctata*; 5 *c*, one of its tentacula.

This species, measuring near an inch across, was taken plentifully in July 1839, in the Frith of Forth, near the Isle of May.

4. *Thaumantias sarnica*, nov. sp. Umbrella hemispherical. Clubs and proboscis bluish. Proboscis four-cleft, lobes acute. Eyes? Tentacula twenty.

Measured half an inch across. Taken in the Channel, between Guernsey and Herm, August 1839.

Pl. I. fig. 6 *a b*, *T. sarnica*; 6 *c*, its proboscis.

These additional species double the number of members of this genus. The four previously recorded were, 1. *T. cymballoidea* (*Medusa cymballaroides*, Slabber, *Dianæa*, Lamarck, see fig. in Encyc. Méth. pl. 93. fig. 2—4). 2. *T. hemisphærica* (see fig. in Zool. Dan. t. 7.), recorded as English by Dr. Macartney, as Irish by Mr. Thompson. 3. *T. multicirrhata* (Sars, Jagt. og Beskr. p. 26. t. 5. fig. 12.). 4. *T. plana* (Sars, p. 28. t. 5. f. 13.), both natives of the Norwegian seas, and to be looked for in our own. The former of Sars's species is easily recognised by its numerous tentacula, above 200, and the elongated clubs of the cross-vessels; the latter by its being quite flat, and also having numerous tentacula.

In observing species of *Thaumantias*, of which many more may occur in our and in other seas, the points especially to be noted are, 1st, the number of tentacula (always a multiple of four); 2nd, the presence, absence, size and colour of eyes at their bases; 3rd, the colour of the cross-vessels and proboscis; 4th, the shape of the umbrella; 5th, the shape of the clubs of the vessels; and 6th, the form and lobation of the oral proboscis or peduncle. I have mentioned these sources of character in what I conceive to be the order of their respective importance, but all should if possible be noted.